CLAIMS

1. A power supply device (1) for energizing a modular measuring system (2), the modular measuring system (2) comprising a modular display and adjustment unit (3) and a modular low power sensor unit (4), wherein the power supply device (1) is adapted to be disposed and connected electrically between the display and adjustment unit (3) and the low power sensor unit (4), enabling for the modular display and adjustment unit (3) and the low power sensor unit (4) to be energized simultaneously, and enabling data communication between the display and adjustment unit (3) and the low power sensor unit (4).

2. The power supply device (1) according to claim 1, whereby the power supply device (1) has a housing (5) being adapted to be interposed between the display and adjustment unit (3) and the low power sensor unit (4).

3. The power supply device (1) according to claim 2, whereby an energy store (6) is arranged within the housing (5).

4. The power supply device (1) according to claim 3, whereby the energy store (6) is a battery, an accumulator, or a gold CAP.

5. The power supply device (1) according to claim 1, which is adapted to be fitted to a low power sensor unit (4) comprising a probe for level measurement or detection and/or switching of liquids or solids having a two wire control loop, in particular a Namur interface, allowing for a power requirement of < 1.2 mA at 5 V.

6. The power supply device (1) according to claim 2, whereby the housing (5) is provided with respective attachment means (7) being adapted to cooperate with respective attachment means (8, 9) of the display and adjustment unit (3) and the low power sensor unit (4) to allow for a detachable engagement.

7. The power supply device (1) according to claim 3, having first and second contacting means (10, 10', 11, 11'), whereby the first contacting means (10, 10') are provided for connection of the energy store (6) to the display and adjustment unit (3) and the low power sensor unit (4), and the second contacting means (11, 11') are provided for data lines which are connected through the power supply device (1).

8. The power supply device (1) according to claim 7, whereby the energy store (6) is connectable via the first contacting means (10) to the input keys (19) of the display and adjustment unit (3).

9. The power supply device (1) according to claim 7, whereby the energy store (6) is connectable via the first contacting means (10') to a microcontroller (12) of the low power sensor unit (4).

10. The power supply device (1) according to claim 7, whereby the data lines of a display controller (13) of the display and adjustment unit (3) are connectable through the power supply device (1) via the second contacting means (11, 11') to the microcontroller (12) of the low power sensor unit (4).

11. The power supply device (1) according to claim 1, which is adapted such that the display and adjustment unit (3) is attachable to the power supply device (1) in at least two positions.

12. A modular system comprising a modular display and adjustment unit (3), a modular power supply device (1), and a modular low power sensor unit (4) which are detachably connectable to each other and which are adapted to be brought into an electrical contact with each other, whereby the power supply device (1) energizes both the display and adjustment unit (3) as well as the low power sensor unit (4) simultaneously, when the modules are connected to each other.

13. The modular system according to claim 12, whereby the low power sensor unit (4) comprises a probe for level measurement or detection and/or switching of liquids or solids, the probe comprising a two wire control loop, in particular a Namur interface, having a power requirement of < 1.2 mA at 5 V.

14. The modular system according to claim 12, whereby the low power sensor unit (4) can be adjusted by means of the display and adjustment unit (3) with the power supply unit (1) interposed in between.

15. The modular system according to claim 12, whereby a controller (13) accommodated in the display and adjustment unit (3) and a microcontroller (12) accommodated in the low power sensor unit (4) communicate with each other with the power supply unit (1), having contacting means (12, 12') connecting the respective data lines through the housing (5), connected in between.

16. The modular system according to claim 12, further comprising an A/D converter (14) being either internal or external to the microcontroller (12) of the low power sensor unit (4), which reads the voltage of the power supply device (1) to close a circuit upon detecting a predetermined voltage value, to thereby connect the power supply unit (1) to the microcontroller (12).

17. The modular system according to claim 12, whereby the display and adjustment unit (3) and the power supply device (1) are adapted to be attached to each other in at least two positions.

18. A sensor unit (15), comprising a low power sensor operating in the range below 1.2 mA at 5 V, being built as a module, and being adapted to be brought into detachable engagement with a modular display and adjustment unit (3), and being connectable electrically thereto, whereby the sensor unit (15) comprises an energy store (16) and a power supply (17) to allow for energizing both the sensor unit (15) as well as

the display and adjustment unit (3), when attached and connected electrically to the low power sensor unit (15).

19. The sensor unit (15) according to claim 18, whereby the energy store (16) is an accumulator or a gold CAP, which is charged by a step up (17) and a controllable power source (18), whereby the charging current can be varied depending on the resist current of the sensor.

20. The sensor unit (15) according to claim 18, comprising further a microcontroller (19), querying cyclically whether the display and adjustment unit (3) is attached or not, and connecting the display and adjustment unit (3) to the internal power supply, in case the presence of the display and adjustment unit (3) is detected.

21. The sensor unit (15) according to claim 18, whereby the microcontroller (19) monitors the operating voltage of the energy store (16), to deenergize the display and adjustment unit (3) upon the detection of the operating voltage falling below a predetermined threshold value, and recharges the energy store (16), whereby the power supply of the measuring operation is not interrupted.

22. The sensor unit (15) according to claim 18, whereby the microcontroller energizes the display and adjustment unit (3) upon the detection of a minimal operating value of the energy store (16).